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**United States Patent** [19]

Gregory et al.

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[54] **METHOD FOR CONVERTING A  
HARDWARE INDEPENDENT USER  
DESCRIPTION OF A LOGIC CIRCUIT INTO  
HARDWARE COMPONENTS**

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**Related U.S. Application Data**

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[52] **U.S. Cl.** ..... **395/500**; 364/261; 364/261.1;  
364/232.3; 364/DIG. 1

[58] **Field of Search** ..... 395/500, 800,  
395/375; 364/489

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[57]

**ABSTRACT**

A method and system are provided for generating a logic network using a hardware independent description means. A logic circuit synthesizer, in response to a user description specifying only signals and the circumstances under which the signals are produced, generates a logic network that generates the signals specified in the user description, e.g., a net list of logic elements, such as logic gates, high impedance drivers, level sensitive latches and edge sensitive flip-flops along with the interconnections of the logic elements. In one embodiment, the logic circuit synthesizer includes a preprocessor means and a logic circuit generator means. The preprocessor means, in response to the user description, converts signals and conditions in the user description into a structure having nodes interconnected by edges. The edges include an edge condition under which the edge is traversed. The logic circuit generator, using the structure and the edge conditions, creates a logic network that generates the signals specified in the user description.

**8 Claims, 25 Drawing Sheets**

Microfiche Appendix Included  
(3 Microfiche, 206 Pages)

